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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/031,534 | 03/28/2002 | James R. Beckman | A32500-PCT USA | 6232 |
| 21003 | 7590 | 12/12/2003 | EXAMINER | |
| BAKER & BOTTS 30 ROCKEFELLER PLAZA NEW YORK, NY 10112 | | | MANOHARAN, VIRGINIA | |
| | | | ART UNIT | PAPER NUMBER |

1764

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/031,534

Applicant(s)

BECKMAN, JAMES R.

Examiner

Virginia Manoharan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

The references cited in the Search Report March 12, 2002 have been considered, but will not be listed on any patent resulting from this application because they were not provided on a separate list in compliance with 37 CFR 1.98(a)(1). In order to have the references printed on such resulting patent, a separate listing, preferably on a PTO-1449 form, must be filed within the set period for reply to this Office action.

This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

The abstract in the PCT does not suffice

The specification had not been checked to the extent necessary to determine the presence of all possible minor errors e.g., typographical, grammar, idiomatic, syntax and etc. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claims 2, 5-7, 9 & 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a). There is no proper antecedent basis for supports in the claims for the following recitations:

- 1). "...The evaporation side of said heat transfer wall" recited in claims 2 & 4;
- 2). "The heating apparatus" recited in claims 5-7;
- 3). "the water vapor in the remaining carrier gas" recited in claim 9; and

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4). "...the condensate production flux" in claim 19.

b). The used of a slash in a claim such as in "liquid /contactor". is improper.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2 and 17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over The Larson et al publication. The Larson et al publication is deemed to anticipates or renders obvious the claimed continuous contacting apparatus for separating a liquid component from a liquid mixture, the apparatus comprising:

An evaporation chamber having first and second ends, an inlet and an outlet for a carrier gas, and an inlet and an outlet for a liquid mixture, wherein the inlet for the liquid mixture and the outlet of the carrier gas are located on the first end of the evaporation chamber;

A dew-formation chamber having an inlet and an outlet for a carrier gas, and an outlet for the separable liquid component, wherein the inlet for the carrier gas of the

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dew-formation chamber is situated in a countercurrent manner to the inlet for the carrier gas of the evaporation chamber; and

A common heat transfer wall capable of providing thermal communication between the evaporation chamber and the dew-formation chamber... " as broadly claimed in claim 1 and the process thereof as broadly claimed in claim 17.

Claim 18 – 19, & 21-23, 2-3, 5-6, 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson et al publication or Kusakawa et al (4,595,459).

The Larson et al publication is discussed supra. Kusakawa et al discloses substantially the apparatus and method as claimed. See e.g., Figs 2-4. While not positively recited, obviously the condensation sections of Kusakawa et al is deemed to correspond to the claimed "dew-formation chamber"

Claim 3 does not define any structural elements of an apparatus; and accordingly cannot be distinguished from the prior art in the structural sense.

Claims 4, 7 – 8 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson et al or Kusakawa et al as applied to claims 2-3, 5-6, 9-16, 18-19 & 21-23 above, and further in view of Albers et al (5,123,481) or Maisotsenko et al (4,350,570).

It would have been obvious to provide a wetting material to the evaporation side of the heat transfer wall of the Larson or Kusakawa's apparatus in order to obtain the advantages taught e.g., col.21, lines 37-63 of the Albers' reference. Note also the disclosure at col. 4, lines 14-23 of Maisotsenko et al basically discloses similar process/apparatus as above. The desiccant describes at cols. 21-22 of Albers renders obvious e.g. claim 7.

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A). Saask discloses a liquid evaporating apparatus with air circulation.

B). Hay discloses a process for increasing the efficiency of a distillation recovery by dew collection.

C). De Filippi et al discloses the used e.g., of CO₂ in distillation system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia Manoharan whose telephone number is 703-308-3844. The examiner can normally be reached on Tuesday-Friday from 7:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824 the fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

V. Manoharan/lap
December 4, 2003



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12/10/03